CLAIM AMENDMENTS

Claim 1. (previously presented) A position measurement method, in which a digital position signal (POS, POS', POS") which represents a position measured by a position sensor is calculated from an input sine signal (SIN) and an input cosine signal (COS) produced by the position sensor, and with an output sine signal (SIN') and an output cosine singal (COS') each having a signal period $(f_{p"})$ which is a multiple of the signal period $(f_{p'})$ of the input signals (SIN, COS) being produced as a function of the digital position signal (POS, POS', POS").

Claim 2. (original) The method as claimed in claim 1, characterized in that the position signal (POS) is digitally filtered.

Claim 3. (original) The method as claimed in claim 2, characterized in that a digital position signal (POS') is formed in the course of the filtering from the filtered position signal, with a resolution (k) which is higher than that of the calculated position signal (POS).

Claim 4. (currently amended) The method as claimed in <u>Claim 1</u> ~~one of the abovementioned claims~~ , characterized in that the position signal is low-pass-filtered.

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Claim 5. (currently amended) The method as claimed in <u>Claim</u> <u>1</u> ~~one of the abovementioned claims~~ , characterized in that the position signal is filtered by forming a sliding mean value.

Claim 6. (currently amended) The method as claimed in <u>Claim</u> <u>1</u> ~~one of the abovementioned claims~~ , characterized in that errors which are typical of the signal transmitter are filtered out of the position signal.

Claim 7. (original) The method as claimed in claim 6, characterized in that the position signal (POS) is filtered by using stored error curves (ERR) which are dependent on the signal transmitter.

Claim 8. (currently presented) The method as claimed in <u>Claim 1</u> ~~one of the abovementioned claims~~ , characterized in that the position signal (POS) is calculated from the arctan (atan) essentially of the quotient from the input sine signal (SIN) and the input cosine signal (COS).

Claim 9. (currently amended) The method as claimed in <u>Claim</u> <u>1</u> ~~one of the abovementioned claims~~ , characterized in that the input sine signal (SIN) and the input cosine signal (COS) are error-corrected before the calculation of the position signal (POS).

Claim 10. (original) The method as claimed in claim 9, characterized in that different amplitudes of the input sine signal (SIN) and of the input cosine signal (COS) are compensated for in the error-correction process.

Claim 11. (currently amended) The method as claimed in claim 9 ~~or 10~~ , characterized in that discrepancies between the offset in the input sine signal (SIN) and/or the input cosine signal (COS) and a nominal offset are regulated out during the error correction process.

Claim 12. (currently amended) The method as claimed in <u>Claim 9</u> ~~one of claims 9 to 11~~ , characterized in that the phase errors in the input sine signal (SIN) and/or the input cosine signal (COS) are corrected during the error correction process.

Claim 13. (currently amended) The method as claimed in <u>Claim 9</u> ~~one of claims 9 to 12~~ , characterized in that the correction values which are used to correct the errors in the input sine signal (SIN) and/or in the input cosine signal (COS) are calculated from the input sine signal (SIN) and/or from the input cosine signal (COS) themselves or itself.

Claim 14. (currently amended) The method as claimed in <u>Claim 1</u> ~~one of the abovementioned claims~~ , characterized in that the position signal (POS, POS', POS") is produced in the form of an essentially periodically varying, digital numerical value from

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k bits, from which a word element (m word) is read from m successive bits.

Claim 15. (original) The method as claimed in claim 14, characterized in that the m word is used for addressing at least one output table (16a, 16b) in order to produce the output signals (SIN', COS').

Claim 16. (currently amended) The method as claimed in claim 14 ~~or 15~~ , characterized in that the position (k_m) of the m word within the k word is shifted by means of a read unit (15), in order to change the frequency of the output signals (SIN', COS').

Claim 17. (currently amended) The method as claimed in Claim 1 ~~one of the abovementioned claims~~ , characterized in that the frequency of the input signals (SIN, COS) is increased by an integer factor.

Claim 18. (currently amended) The method as claimed in Claim 1 ~~one of the abovementioned claims~~ , characterized in that the frequency of the input signals (SIN, COS) is increased by the factor 2^{k-km} in the output signals (SIN', COS').

Claim 19. (currently amended) The method as claimed in Claim 1 ~~one of the abovementioned claims~~ , characterized in that the output signals (SIN', COS') are read as a function of the

position signal (POS, POS', POS") from at least one output table (16a, 16b) containing digitized values ($*(0)$, ..., $*(2^m-1)$) of a sine function.

Claim 20. (currently amended) The method as claimed in Claim 15 ~~one of claims 15 to 19~~ , characterized in that two output tables (16a, 16b) are used, and are respectively associated with the output sine signal (SIN') and the output cosine signal (COS').

Claim 21. (currently amended) The method as claimed in Claim 1 ~~one of the abovementioned claims~~ , characterized in that the input signals (SIN, COS) are produced from a position or angle measurement system (2).

Claim 22. (currently amended) The method as claimed in Claim 1 ~~one of the abovementioned claims~~ , characterized in that the quadrant position of a reference signal (REF) relative to the input signals (SIN, COS) is matched to the output signals (SIN', COS').

Claim 23. (original) A position measurement system (1) for processing of signals (SIN, COS, REF) from a position sensor (1) with an input interface (21) to which an input sine signal (SIN) and an input cosine signal (COS) from a position sensor (7) can be supplied during operation, having a calculation unit (30) by means of which a digital position signal (POS, POS', POS") which

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represents a position measured by the position sensor, can be produced from the input sine signal (SIN) and the output cosine signal (COS), and having a signal generation unit (16), by means of which an output sine signal (SIN') and an output cosine signal (COS') can be produced as a function of the position signal (POS), respectively with a signal period which is a multiple of the input sine signal (SIN) and the input cosine signal (COS).

Claim 24. (original) The apparatus as claimed in claim 23, characterized in that a register (14) is provided in which the atan value can be stored as a k word with a resolution of k bits, and an addressing unit is provided, by means of which an m word comprising m successive bits where m<k can be read from the k word.

Claim 25. (currently amended) The apparatus as claimed in claim 23 ~~or 24~~ , characterized in that a signal conditioning device (23) is arranged between the calculation unit (30) and the input interface (21), by means of which the signal errors in the input sine signal (SIN) can be corrected using the input cosine signal (COS).

Claim 26. (currently amended) The apparatus as claimed in <u>Claim 24</u> ~~one of claims 23 to 25~~ , characterized in that a digital filter (13) is arranged between the calculation unit (30) and the register (14), by means of which errors which are dependent on

the signal transmitter can be filtered out of the position signal (POS).

Claim 27. (original) The apparatus as claimed in claim 26, characterized in that the digital filter (13) is essentially in the form of a low-pass filter.

Claim 28. (currently amended) The apparatus as claimed in claim 26 ~~or 27~~ , characterized in that the position signal (POS) has a resolution of i bits upstream of the digital filter, and has a resolution of k bits downstream from the digital filter, where k>i.

Claim 29. (currently amended) The apparatus as claimed in <u>Claim 23</u> ~~one of claims 23 to 27~~ , characterized in that the apparatus has a position measurement means (2), by means of which the input signals (SIN, COS) can be produced as signals which represent the movement of a meas

Claim 30. (new) The method as claimed in Claim 10, characterized in that discrepancies between the offset in the input sine signal (SIN) and/or the input cosine signal (COS) and a nominal offset are regulated out during the error correction process.

Claim 31. (new) The method as claimed in Claim 15, characterized in that the position (k_m) of the m word within the

k word is shifted by means of a read unit (15), in order to change the frequency of the output signals (SIN', COS').

Claim 32. (new) The apparatus as claimed in Claim 24, characterized in that a signal conditioning device (23) is arranged between the calculation unit (30) and the input interface (21), by means of which the signal errors in the input sine signal (SIN) can be corrected using the input cosine signal (COS).

Claim 33. (new) The apparatus as claimed in Claim 27, characterized in that the position signal (POS) has a resolution of i bits upstream of the digital filter, and has a resolution of k bits downstream from the digital filter, where k>i.